WHAT IS CLAIMED IS:

1. An intravascular guide wire, comprising:

a core having a proximal core section with proximal and distal ends and a distal core section with proximal and distal ends; and

a mass of hardened material at a joint connecting the distal end of the proximal core section to the proximal end of the distal core section;

wherein the joint is not covered by a sleeve.

2. The guide wire of claim 1, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section have a D-shape cross-sectional shape.

3. The guide wire of claim 1, wherein a backside of one of the distal end of the proximal core section and the proximal end of the distal core section includes a taper.

4. The guide wire of claim 1, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section includes a serration.

5. The guide wire of claim 1, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section includes a rounded cross-section having a straight edge.

6. The guide wire of claim 1, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section includes a front side including a taper.

7. The guide wire of claim 1, wherein the distal end of the proximal core section and the proximal end of the distal core section have locking serrations, and the locking serrations of the ends grip one another.

8. The guide wire of claim 1, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section includes gold tin disposed thereon.

9. The guide wire of claim 1, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section has been etched.

10. The guide wire of claim 1, wherein the mass of hardened material includes a bonding material selected from the group consisting of: solders, brazes, epoxies, glues, laser welds, or spot welds.

11. The guide wire of claim 1, wherein the mass of hardened material is disposed in-between the distal end of the proximal core section and the proximal end of the distal core section.

12. The guide wire of claim 1, wherein the mass of hardened material is disposed in-between the distal end of the proximal core section and the proximal end of the distal core section encasing the ends.

13. An intravascular guide wire having at least two core materials joined together without the use of a hypotube, comprising:

a core having a proximal core section with a proximal end and a distal end and a distal core section with a proximal end and a distal end;

the distal end of the proximal core section and the proximal end of the distal core section being aligned complementary to one another; and

a mass of hardened material disposed between the distal end of the proximal core section and the proximal end of the distal core section.

14. The guide wire of claim 13, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section have a D-shape cross-sectional shape and a backside of one of the D-shape cross-sectional shape ends includes a taper.

15. The guide wire of claim 13, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section have a D-shape cross-sectional shape including a serration.

16. The guide wire of claim 15, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section includes a rounded cross section having a straight edge.

17. The guide wire of claim 13, wherein at least one of the distal end of the proximal core section and the proximal end of the distal core section includes a D-shaped cross-sectional shape including a taper.

18. The guide wire of claim 13, wherein the distal end of the proximal core section and the proximal end of the distal core section have locking serrations, and the locking serrations of the ends grip one another.

19. The guide wire of claim 13, wherein the mass of hardened material includes a bonding material selected from the group consisting of: solders, brazes, epoxies, glues, or welds.

20. The guide wire of claim 13, wherein the mass of hardened material encases the distal end of the proximal core section and the proximal end of the distal core section.

21. A method for joining two intravascular guide wire core materials without using a hypotube, comprising:

providing a proximal core section with a proximal and distal end and a distal core section with a proximal and distal end;

forming a complementary shape into the distal end of the proximal core section and the proximal end of the distal core section;

positioning the proximal and distal core sections in opposing directions;

leaving a gap in-between the distal end of the proximal core section and the proximal end of the distal core section; and

disposing in the gap a mass of material joining the proximal and distal core sections together.

22. The method of claim 21, further comprising grinding the joined proximal and distal core sections to a desired diameter.

23. The method of claim 21, wherein the complementary shapes include a D-shape.

24. The method of claim 21, further comprising tapering a backside of at least one of the distal end of the proximal core section and the proximal end of the distal core section.

25. The method of claim 21, further comprising serrating the distal end of the proximal core section and the proximal end of the distal core section.

26. The method of claim 25, further comprising tapering a backside of at least one distal end of the proximal core section and the proximal end of the distal core section.

27. The method of claim 21, wherein the complementary shape includes a tapered D-shape.

28. The method of claim 21, wherein the complementary shaped ends include locking serrations.

29. The method of claim 28, further comprising engaging the locking serrated ends together.

30. The method of claim 21, wherein the complementary shape is formed by a process consisting of: grinding, laser machining, electrical discharge machining, or chemical etching.

31. The method of claim 21, further comprising gold tinning the complementary shaped ends.

32. The method of claim 21, further comprising etching the complementary shaped ends.

33. The method of claim 21, further comprising plunge grinding the distal end of the proximal core section and the proximal end of the distal core section prior to forming the complementary shaped ends.

34. The method of claim 21, further comprising plunge grinding the distal end of the proximal core section and the proximal end of the distal core section after forming the complementary shaped ends.

35. A method for joining at least two intravascular guide wire core materials without using a hypotube, comprising:

providing a proximal core section with a proximal and distal end and a distal core section with a proximal and distal end;

plunge grinding at least one of the distal end of the proximal core section and the proximal end of the distal core section;

positioning the proximal and distal core sections in opposing directions;

leaving an overlap between the distal end of the proximal core section and the proximal end of the distal core section;

applying a hardening material along the overlap; and

grinding the joined guide wire cores to a desired diameter.

36. An intravascular guide wire, comprising:

a core having a proximal core section with a proximal end and a distal end and a distal core section with a proximal end and a distal end;

the distal end of the proximal core section and the proximal end of the distal core section having respective complementary surfaces engaging one another; and

means for joining the proximal and distal core sections together, without using a sleeve.

37. An intravascular guide wire, comprising:

a core having a proximal core section with proximal and distal ends and a distal core section with proximal and distal ends; and

a mass of material having sufficient strength to bond the proximal core section to the distal core section being disposed at a joint between the distal end of the proximal core section and the proximal end of the distal core section.

38. The guide wire of claim 37, wherein the joint has a smooth and constant cross-section from the proximal core section to the distal core section.

39. A method for joining at least two intravascular guide wire core materials, comprising:

providing a proximal core section with a proximal and distal end and a distal core section with a proximal and distal end;

forming a complementary shape into the distal end of the proximal core section and the proximal end of the distal core section;

positioning the proximal and distal core sections in opposing directions;

leaving a gap in-between the distal end of the proximal core section and the proximal end of the distal core section; and

disposing in the gap a mass of material having sufficient strength to bond the proximal core section to the distal core section.